

X. *North American Tortricidæ*. By Lord WALSINGHAM,
M.A., F.Z.S., &c.

[Read April 2nd, 1884.]

PLATE IV.

IN the course of the last two years I have received from a well-known collector, Mr. H. K. Morrison, several boxes of *Tortricidæ*, *Tineidæ*, and *Pterophoridæ* from North America. The *Tortricidæ*, of which I propose to give a complete list, so far as they can be properly identified, include specimens from Arizona, Mexico, Florida, North Carolina, Wisconsin, and Montana. These several collections are interesting, not only on account of the rather numerous undescribed species represented in them, but more especially as illustrating the subject of geographical distribution.

In the following list I propose to adopt the provisional arrangement and classification followed in Prof. Fernald's Catalogue, published in the 'Transactions' of the American Entomological Society, Philadelphia, in 1882; but I trust that the time is not far distant when the results of those more mature studies which he has foreshadowed may be made known. The collection from Arizona contains a large proportion of species which range northward to California, some even to Oregon, and which exhibit no important degrees of variation within these limits. The few Mexican specimens belong, with one exception, to undescribed species.

From Florida we get two species, originally figured by Hübner under the names *Eucosma circulana* and *Pharmacis sartana*; the reappearance of the latter is interesting as dispelling the illusion that it was equivalent to Robinson's *Conchylis bimaculana*.

North Carolina yields many species described by Clemens and Robinson; but, with very few exceptions, these, as well as those from Wisconsin and Montana, are found to be exclusively representatives of the fauna of the Eastern States, although not a few of them have

a widely-extended range of distribution to north and south.

The great dividing range of the Rocky Mountains exercises, as might have been expected, a very important influence upon the Micro-Lepidoptera of North America, forming a barrier over which these delicate insects are apparently unable to pass. The proportion of eastern species found on the western side of this barrier is remarkably small, although the same genera are for the most part represented more or less abundantly in both parts of the continent.

It has been a matter of regret to me that the single plate which accompanies this paper was prepared before a number of the more interesting species reached me. I am unwilling to delay the publication of the paper until the return of the artist, who is now abroad; but I trust that at some future time I may be able to include, in another publication, good figures of the greater portion of the species herein described, several of which, represented as they are by one or two specimens only, I am unable at present to distribute among my many obliging correspondents in America.

Pædisca giganteana, Riley, and *Ænectra irrorea*, Rob., were not recognised as described species until after they had been included in the plate; but figures of both these species will, I hope, be found useful.

TORTRICIDÆ.

TORTRICINÆ.

CACÆCIA, Hüb.

Cacæcia rosaceana, Harris.

One male. Wisconsin.

Cacæcia purpurana, Clem.

One male. Wisconsin.

Cacæcia cerasivorana, Fitch.

One pair. Wisconsin.

Cacæcia parallela, Robs.

Three males, one female. Wisconsin.

C. obsoletana, Walk., one male, Montana; *C. transiturana*, Walk., three females, Montana.

It is extremely probable, as suggested by Professor Fernald, in his "Catalogue of the Tortricidæ of North America," p. 12 (Trans. Am. Ent. Soc., Phil., 1882), that these may be the opposite sexes of one and the same species.

In addition to the four specimens above mentioned, I have received from Florida a pair, evidently belonging to one species, which agree entirely with Robinson's figure and description of *C. sanbornana* (Trans. Am. Ent. Soc., ii., p. 265, pl. 1, f. 8). The under sides of the wings are more decidedly ochreous than in the more northern specimens—the fasciæ obsolete, indicated only by patches of purplish scales. I have no doubt that Fernald is right in regarding *sanbornana*, Rob., as a synonym of *transiturana*, Walker, but the male differs somewhat in appearance from the Montana male of *obsoletana*, which agrees more closely with the figure and description of the variety (?) described by Clemens under the name *vesperana*.

LOXOTÆNIA, Steph.

Loxotænia virescana, Clem.

One male. Arizona.

This specimen is somewhat larger than Zeller's type of *L. sescuplana*, which Fernald has identified as this species. *L. glaucana*, Wlsm., although much darker in colour than any specimens that have reached me from the Eastern States, may not impossibly prove to be also a large variety of the same.

LOPHODERUS, Steph.

Lophoderus triferana, Walk.

Five specimens. N. Carolina.

Lophoderus politana, Haw.

Four specimens. Wisconsin.

? *Lophoderus mariana*, Fern.

One male. Florida.

Not having seen specimens of this species, I am somewhat doubtful if I have rightly identified it, but it does not appear to belong to any other described species.

SCIAPHILA, Treits.

Sciaphila arizonana, n. s. (Pl. IV., fig. 1).

Palpi dirty white above, brownish fuscous at the sides. Head dirty whitish, the joints of the antennæ brownish fuscous, strongly pubescent, with greyish white hairs. Thorax fuscous. Fore wings (with the costa slightly arched near the base, straight beyond, the apex rounded, apical margin very slightly concave) pale whitish straw-colour, the margins shaded and blotched with fuscous. The costal half of the wing at the base is fuscous; beyond the base is a small costal spot of the same colour, from which some scattered dark scales are traceable to the dorsal margin. Scarcely beyond the middle of the wing is a large fuscous costal blotch, its inner edge tending obliquely outwards towards the anal angle, in which direction it can be faintly traced by a few scattered dark scales. At the apex is a similar dark patch connected with the base of the wing by a shade of the same colour around the apical and dorsal margins. Between the more conspicuous costal blotches are some small fuscous dots. The cilia are of the paler ground colour of the wing, with a fuscous line along their middle. Hind wings dull greyish; cilia paler, with a fuscous line along their middle. Tarsi pale straw-colour, spotted with fuscous. Exp. al. 16 mm.

Two males. Arizona.

TORTRIX, Linn.

Tortrix pallorana, Rob.

Two females. Montana.

I am not quite confident that I have rightly identified this species; the specimens are both females, and are much larger than Robinson's measurement, one being 33 mm. in expanse; the hind wings have a slight greyish tinge, rather than very pale ochreous, as stated in the description of the type.

Tortrix quercifolia, Fitch.

One male. N. Carolina.

Tortrix peritana, Clem.

Twelve specimens. N. Carolina.

AMORBIA, Clem.

Amorbia humerosana, Clem., var.

One male. N. Carolina.

This is a fine dark variety of the species described by Clemens, if indeed it is not specifically distinct from it. It differs in the absence of the conspicuous rufous tinge about the dorsal margin, which distinguishes the ordinary varieties, and which in this is replaced by scattered tawny scales not plainly distinguishable from the ground colour of the wings. The whole surface of the wings is considerably darker than usual, being of a dark smoky grey throughout, on which the ordinary darker shade, although occupying the same position as in the paler varieties, are less noticeable. The hind wings are also very much darker than in the usual form.

ÆNECTRA, Guenée.

Ænectra irrorea, Rob. (Pl. IV., fig. 3).

Robinson's figure (Trans. Am. Ent. Soc., vol. ii., pl. v., fig. 44) scarcely gives a sufficiently accurate idea of this lovely species; a redescription may be useful.

Palpi dark brown externally, tinged with ochreous on their inner side. Head and antennæ brown, tinged with ochreous. Thorax dull ochreous above, the patagia blotched with deep brown. Abdomen pale ochreous. Fore wings with costa much arched, bright ochreous, the extreme base of the costa deep purplish black, followed by a chestnut-brown shade. A deep purplish black blotch above the outer half of the fold, surrounded by a bright chestnut-brown shade reaching to the dorsal margin, on which are a few black scales. Above and below this blotch is a spot of similar purplish black scales on the subcostal vein, also surrounded by a chestnut-brown shade, and immediately below the costal margin at the commencement of the outer third of its length is a slightly larger spot of the same colour, from which a bright chestnut shade is extended outwardly along the costa not reaching the apex; from this shade to the anal angle, running nearly parallel with the apical margin, is a series of six or eight purplish black dots, each accompanied by a few chestnut-brown scales. There is a narrow line of chestnut-brown along the apical margin; the cilia bright ochreous. All the wings freely reticulated with brown on their under sides. Hind wings pale cinereous, showing through them the reticulations of the under side. Expanse, 19 mm.

One male. N. Carolina.

Ænectra violaceana, Robs.

Four specimens. Wisconsin.

Ænectra ? striata, n. s. (Pl. IV., fig. 2).

Head and palpi pale ochreous, tinged with reddish brown at the sides. Antennæ strongly pubescent, dull ochreous. Thorax ochreous, tinged with reddish brown, with a few iridescent bluish scales at the back. Fore wings (with the costa nearly straight, the apex rounded; apical margin convex, scarcely oblique) straw-yellow, the extreme costal margin narrowly tinged with reddish. A broad distinct bright reddish purple streak commencing in the middle of the base of the wing runs to the apex, overspreading the costa beyond the middle. There are also a few scattered bluish metallic scales below the fold. Hind wings whitish, with a delicate tinge of straw-colour. Abdomen and anal tuft straw-colour. Exp. al. 22 mm.

One male. Montana.

This single specimen is not in very good condition, but it is very distinct from anything I can find described. It has the palpi and neurulation of *Cenopsis*, but the head being somewhat worn the distinctive character of that genus is not distinguishable, and in the absence of a costal fold it would naturally fall into the genus *Ænectra*, but its straightened costal margin renders it doubtful whether it can be finally retained in this genus.

Ænectra distincta, n. s.

Palpi ochreous, tinged with purplish above. Antennæ purplish fuscous, somewhat serrated and pubescent in the male. Head and thorax ochreous, touched with purplish fuscous. Fore wings elongate, with the costa arched, the apical margin oblique and convex; rich ochreous, streaked and reticulated with brilliant greenish metallic scales. Hind wings shining pale tawny, with somewhat paler cilia. Abdomen pale tawny. Expanse, 22—23 mm.

One male, three females. Arizona.

This species has much the appearance of Walker's *Teras directana*, which it resembles in the ground colour of all the wings, and in the series of beautiful greenish iridescent scales which adorn them, although these are scarcely noticeable by the unassisted eye; whilst it differs in the absence of an oblique fascia and of other dark markings beyond it.

I am not able to agree with Prof. Fernald in regarding *T. directana*, Walk., as a synonym of *Cenopsis reticulata*, Clem., which differs from it in its larger and more

brightly-coloured palpi, in the more orange hue of the fore wings, and in their reticulated appearance visible to the naked eye. I am still of opinion that Walker's *directana* is a pale variety of *C. testulana*, Zell., but, as the locality from which the typical specimen was obtained is unknown, it may yet be proved to belong at least to a distinct local race.

There is a peculiarity about the neururation of the species above described which is especially worthy of notice when comparing it with various species of the allied genus *Cenopsis*. In the male sex vein 4 of the fore wings arises about equidistant from veins 3 and 5; whereas in the female it branches from a common stem with vein 3. The female of *Cenopsis testulana* has these veins situated as in the male of *Ænectra distincta*; whereas in both sexes of *C. demissana*, Wlsm., vein 4 of the fore wings is decidedly nearer to 5 than to 3.

DICHELIA, Guenée.

Dichelia sulfureana, Clem.

Specimens from N. Carolina, Wisconsin, Florida, and Montana.

AMPHISA, Curt.

Amphisa discopunctana, Clem.

One male. N. Carolina.

PLATYNOTA, Clem.

Platynota flavedana, Clem.

One male. N. Carolina.

Platynota stultana, n. s.

Head with very long palpi and antennæ, half the length of the fore wings, cinereous. Fore wings dull chestnut-brown towards the base, paler beyond the middle. A large ill-defined blackish fuscous patch extends somewhat obliquely outwards from before the middle of the costa, its lower extremity reaching to the fold; beyond this patch is a small triangular costal mark of the same colour. A narrow chestnut-brown shade profusely speckled with blackish fuscous scales extends along the apical margin before the brownish ochreous cilia. Hind wings cinereous. Exp. al. 12 mm.

This species is easily distinguished from others of the same genus hitherto described by its smaller size and

shorter costal fold, which extends but a short space from the base, and is suffused with blackish fuscous scales. The usual lines of raised scales are scarcely observable in my specimens, although sufficient to indicate that in fresher examples they would be more conspicuous. Exp. al. 12 mm.

Four specimens from the province of Sonora, Mexico.

Platynota labiosana, Zell.

Eight specimens. Arizona.

Platynota sentana, Clem.

One female. Montana.

Platynota semiustana, n. s.

Head, palpi, and base of antennæ dark purplish fuscous. Fore wings dark purplish fuscous, except the outer fourth, which is greyish ochreous, crossed by two slender dark purplish fuscous oblique lines of raised scales, and slightly mottled, especially towards the apex, with purplish fuscous. In the dark portion of the wing are four or five patches of conspicuously raised scales, two above and two below the fold being most noticeable; the first of the two upper ones (which is further from the base than the first of the two lower ones) and the second of the lower ones, are much mixed with greyish ochreous; the dark purplish fuscous costal fold is not extended so far along the wing as in *P. flavedana*, Clem., but is somewhat larger than in *P. stultana*, Wlsm. Hind wings cinereous. Abdomen greyish ochreous at the base, cinereous beyond. Exp. al. 13—14 mm.

One male. N. Carolina.

CONCHYLINÆ.

CONCHYLIS, *Treitschke*.

Conchylis edwardsiana, n. s.

Head pale straw-colour; palpi the same, tinged with brownish on their outer sides. Antennæ pale brownish. Thorax ferruginous above, inclining to pale straw-colour at the sides. Fore wings pale straw-colour, faintly reticulated with yellowish scales. Cilia pale straw-colour. A ferruginous basal patch expanding below the costa is continued along the dorsal margin in the form of a band of scattered ferruginous scales, ending in a triangular patch of the

same colour, reaching to the anal angle; in this patch, and generally interspersed among the ferruginous band, are shining purplish grey or lilac scales. Hind wings pale greyish, with a slight rosy tinge. Under side of the fore wings pale brownish, of the hind wings white. Legs very pale straw-colour, the 1st pair marked on their upper surface with brown. Expanse, 23 mm.

One female. Arizona.

At first sight this insect reminds one much of *Ptycholoma semifuscana*, Clem. I have named it after Mr. Henry Edwards of New York, whose intimate knowledge of the Lepidoptera of the Western States of America is an unfailing source of useful information to his entomological friends.

Conchylis comes, n. s.

Head pale straw-colour. Palpi projecting more than the length of the head beyond it; pale straw-colour, tinged with brownish on their outer sides; the 2nd joint long and straight, with scales projecting on its under side as far as the end of the short apical joint. Antennæ pectinated, pale straw-colour, tinged with brownish on their upper sides. Fore wings rather broad, with the costa arched before the middle, where is a small scaled flap turned downwards beneath it, pale straw-colour, tinged with pale tawny brown along the dorsal part of the wing beneath the fold from the base to the end of the cell. The base of the costa is narrowly ferruginous; at the commencement of the outer half of the costal margin is a triangular ferruginous patch followed by a more extended patch of the same colour reaching to the apex; in each of these are a few purplish scales. Fringes unicolorous with the pale ground colour of the wing. Hind wings shining pale tawny. Under side of fore wings shining unicolorous tawny. Under side of hind wings shining straw-white. Expanse, 18 mm.

One male. Arizona.

This appears to be allied to *C. enicana*, Dbld., differing chiefly in the absence of the dorsal markings.

Conchylis sartana, Hüb.

Four specimens have reached me of what is undoubtedly the true *Pharmacis sartana*, Hüb. ('Zuträge,' 223, 224) captured, as I am informed by Mr. Morrison, in North Carolina and Florida.

This species, regarded by Prof. Fernald as equivalent to *Conchylis bimaculana*, Rob., differs from Robinson's

figure (Trans. Am. Ent. Soc., ii., pl. viii., f. 78), as well as from specimens in my possession, in that the first of the two dark markings on the fore wings is distinctly and throughout its lower edge connected with the dorsal margin instead of being entirely separated from it. In this it agrees with Hübner's figure, and there can be no doubt that the two species are quite distinct. Robinson's *Conchylis bimaculana* is therefore still entitled to retain its place in our lists.

Head, palpi, thorax, and fore wings rich brownish ochreous, the outer sides of the palpi, the antennæ, and the extreme costal margin (in fresh specimens) shaded with chestnut-brown. A rich chestnut-brown triangular blotch pointing obliquely outwards from the middle of the dorsal margin, its apex reaching the costa beyond the middle is followed by a lunate blotch preceding the apical margin, its concave upper edge facing a small oblique oblong ovate subcostal spot. Hind wings fuscous. Expanse, 14 mm.

Conchylis sonore, n. s.

Head and palpi whitish ochreous, the latter, except on the apical joint, ferruginous-brown on their outer sides. Antennæ whitish ochreous. Fore wings whitish ochreous, much suffused with shining silvery scales. The extreme costal margin ferruginous-brown at the base; in some specimens a ferruginous-brown line runs from the base nearly half the length of the wing immediately below and parallel to the costa. A ferruginous-brown central streak arises at the base of the wing, not contiguous to the dorsal margin, and dilating outwardly reaches nearly to the middle. Beyond the middle is a small ferruginous-brown costal spot partially blending with an oblique shade or streak of the same colour, which tends outward towards a point below the centre of the apical margin. An elongate triangular ferruginous-brown spot precedes the anal angle, to which its point almost attains, while its base is separated from the dorsal margin. Before the apex there is a second small costal spot, and along the apical margin a distinct streak, both ferruginous-brown. Expanse, 15 mm.

This species, of which I have received from Mr. Morrison several specimens from Sonora, in Mexico, all remarkably constant in the position of their markings, differs from *C. dorsimaculana*, Rob., and *C. promptana*, Rob., to which it is nearly allied.

The most noticeable distinction is to be found in the complete separation of the basal streak from the dorsal

margin, from which in both the above-named species it distinctly arises.

Conchylis hospes, n. s.

Head pale ochreous above, the face and inner side of the palpi whiter; outer side of palpi tinged with reddish brown. Antennæ brownish. Fore wings with the costal margin tinged with reddish brown at the base. A shining pale ochreous basal patch partially suffused with brownish ochreous scales, having its outer edge oblique, occupies the first third of the wing, and is wider on the costal than on the dorsal margin; beyond it is a conspicuous rather triangular purplish fuscous cloud, widest on the dorsal margin, and blending towards the costal margin and outwardly towards the apex with rich ferruginous-brown shading, sprinkled and streaked with shining steel-grey metallic scales, which extend into a pale ochreous border along the apical margin, and a pale costal spot of the same colour opposite the anal angle. Hind wings and under side of both pairs cinereous. Expanse, 12 mm.

Allied to *C. schreibersiana*, Froel., and probably to *C. erigeronana*, Riley, but easily distinguishable by its pale ochreous outer border and fringes. Behind and above the eyes are erect tufts of palmate ochreous scales. It may be that these should be laid back along the front of the thorax, and have been accidentally raised in pinning the specimen; but they present an unusual appearance.

I have received a single male of this beautiful species from N. Carolina.

Conchylis plicana, n. s.

Head, palpi, thorax, and fore wings creamy white, the costa tinged with rosy brown; a rather narrow oblique fascia from the middle of the dorsal margin reaches a point beyond the middle of the costa, beneath which it is bent outwards. There are some chestnut-brown scales at its outer angle and along its costal edge; preceding it on the basal third and following it on the outer portion of the wing are slight olivaceous shades; a small spot of brownish scales preceding the anal angle on the dorsal margin. Under side of fore wings with a distinct rosy tinge towards the costa. Hind wings greyish white, with a distinct narrow costal fold in the male, occupying two-thirds of the costal margin, and concealing a pencil of dark hairs. Expanse, $10\frac{1}{2}$ mm.

Three males and one female from Sonora, in Mexico. One only in good condition, so far as the markings are concerned.

Conchylis angulatana, Robs.

Four specimens. N. Carolina.

Conchylis fulvotinctana, n. s. (Pl. IV., fig. 5).

Head, thorax, palpi, and antennæ dingy whitish. Fore wings dull greyish white, somewhat speckled with fuscous scales, with a broad outwardly oblique reddish tawny patch above the middle of the dorsal margin, to which it does not extend, and beyond it a reddish tawny shade occupying the whole apical portion of the wing, its inner margin oblique and parallel with the outer side of the central tawny patch. Cilia greyish white, profusely speckled with fuscous scales. Hind wings pale cinereous. Expanse, 13 mm.

Two specimens. Arizona.

A narrow-winged species belonging to the same group as *ciliella*, Hüb.

Conchylis dorsistriatana, n. s. (Pl. IV., fig. 4).

Head and palpi whitish fawn-colour, more deeply tinged on their outer sides. Antennæ pale fawn-colour. Thorax and fore wings pale reddish fawn-colour, the fore wings rather more deeply tinged on the basal than on the outer half. A whitish fawn-coloured streak, gradually narrowed outwardly, extends from the base of the wing along the dorsal margin to two-thirds of its length; from the outer half of this arise on each side of the middle of the wing two straight slender but not very distinct parallel lines, the first longer than the second, both extending obliquely outwards towards the end of the cell. The fringes are of the same colour as the wing, and have a scarcely perceptible pale line along their base. Hind wings very pale tawny, with white fringes. Expanse, 18 mm.

One male. Arizona.

A large and rather broad-winged species, apparently belonging to the same group as *C. roscana*, but very distinct from any described species with which I am acquainted.

PHTHEOCHROA, Steph.

A species of this genus, allied to *amandana*, H.-S., from Sonora, in Mexico, agrees well with specimens lately received from Prof. Riley, and is undescribed.

PSEUDOCONCHYLIS, n. g.

Head broad; eyes large and projecting; palpi roughly clothed to the apex, projecting scarcely the length of the head in front. Antennæ stout, simple, about half the length of the fore wings, the basal joint clothed with scales, the joints closely set. Fore wings without a costal fold, narrow at the base, widening outwards, nearly three times as long as their width across the middle; the costa slightly raised at the base, depressed at the apex, which is rounded; the apical margin oblique, not indented; anal angle rounded. Hind wings rounded at the apex, of almost even width throughout their length, with long fringes. Neuration: Branches 7 and 8 of the fore wings from a common stem, branch 2 arising from the outer third of the cell; hind wings with branches 3, 4, and 5 remote from each other, 6 and 7 separate and nearly parallel; in this respect it differs from *Conchylis*, Tr., although the position of vein 2 in the fore wings places it without doubt in juxtaposition to this genus.

Pseudoconchylis laticapitana, n. s.

Head whitish ochreous. Palpi the same, sprinkled with brownish scales externally. Antennæ pale ochreous. Fore wings whitish ochreous, mottled and speckled with ochreous greyish brown and brown scales. Brown dots and spots are distributed around the costal and apical margins, the extreme base of the costa being also brownish. There is an ill-defined oblique fasciaform shade commencing below the outer third of the costal margin, and terminating in an aggregation of brown scales on the fold; the brown scales appear to be very fugitive, and in specimens only slightly worn are scarcely noticeable. Hind wings and abdomen pale brownish. Expanse, 17 mm.

Both sexes obtained in Lake County and Shasta County, California, June 25th to July 10th, 1871, by myself.

GRAPHOLITHINÆ.

RETINIA, Guenée.

Retinia, sp. ?

A single male from North Carolina agrees with the example recorded in part iv. of the 'Catalogue of Typical Specimens of Lepidoptera-Heterocera in the British Museum,' p. 77, from Camp Watson, in Oregon, under the name *Retinia duplana*, Hüb. On re-examining this specimen I find that it differs from the European specimens of *duplana* in having the antennæ of the male very strongly pectinated.

BACTRA, *Steph.**Bactra lanceolana*, Hüb.

Several from Arizona; one from N. Carolina.

These do not appear to vary in the same degree as do specimens of this species obtained in Europe; they approach the North American variety described by Zeller under the name *Bactra lanceolana*, var. *verutana*.

APHELIA, *Steph.**Aphelia ? inquadrana*, n. s. (Pl. IV., fig. 15).

Head and palpi evenly sprinkled with brown and greyish white scales. The palpi projecting more than the length of the head beyond it. Antennæ cinereous. Fore wings evenly sprinkled with pale brown and greyish white; a few very dark brown scales scattered over their surface and contributing especially to the intensity of a series of short costal streaks and two oblique dorsal markings, of which the first commences on the outer edge of the basal third of the dorsal margin, and reaches rather more than half across the wing in an outwardly oblique direction; the second triangular at the commencement of the outer third (in the female somewhat nearer to the anal angle), not reaching to the middle of the wing; beyond this is a faint indication of an ocellated patch enclosed by sublustrous parallel bars of steel-grey scales. On the costal margin before the apex are two pairs of short white streaks somewhat more conspicuous than other similar streaks preceding them, the apex and part of the apical margin being also whitish; a short inconspicuous straight whitish streak runs from the extreme base along the middle of the wing. Fringes mottled in the same manner as the wing-surface. Hind wings dusky cinereous, somewhat darker towards the margins, with paler fringes. The female is much paler than the male, having the fore wings creamy white, with pale fawn-brown mottlings, and the markings as in the male, but less conspicuous, as containing fewer dark brown scales; the hind wings are also paler, and the antennæ simple and more slender than those of the other sex. Expanse, male 16 mm., female 18½ mm.

Arizona.

This appears to be allied to *Aphelia sareptana*, H.-S., having also the rather long palpi which distinguish this species, but differing in the markings arising from the dorsal margin instead of being separated from it. I am somewhat doubtful as to its proper generic position.

ECCOPSIS, Zell.

Eccopsis permundatum, Clem.

Two, N. Carolina; two, Wisconsin.

Eccopsis fasciatana, Clem.

Four. N. Carolina.

PENTHINA, Treits.

Penthina impudens, n. s.

Head, palpi, antennæ, and thorax dark greyish fuscous. Fore wings with a dull greyish fuscous basal patch occupying about one-fourth of the length of the wing, somewhat streaked with darker or more brownish fuscous lines, and slightly indented below the fold. The lower half of this basal patch, as far as the middle of the cell, is followed on its outer side by the rather creamy white ground colour of the wing, but the upper half, which recedes towards the costa, is connected by a greyish fuscous shade with an oblique brownish fuscous costal patch about the middle of the wing, which forms the upper one of an irregular and oblique series of three patches of the same colour forming a broken fascia to the dorsal margin, interspersed with olivaceous-ochreous scales, and margined on its inner side by an olivaceous-ochreous band. Following this interrupted fascia is a patch of the pale ground colour, shaded especially towards the costa with shining greyish scales; an oblique centrally distended olivaceous-ochreous band from the costal to the apical margin, and an oblique line of shining greyish scales before the brownish fuscous apex. The dark fringes with a brownish fuscous line along their base have a slight purplish hue in some specimens. The dark costal margin is marked with six pairs of paler streaks, of which the three outer pairs most nearly approach the creamy white ground colour. Omitting others more or less inconspicuous in the space occupied by the basal patch, these streaks are thus distributed: two pairs in the grey shade succeeding the basal patch, one pair immediately beyond the dark central patch or fascia, the other three beyond the distended olivaceous-ochreous band. Hind wings pale brownish fuscous, with lighter fringes, having a dark line along their base. The abdomen is of the same colour, but the bilobed upper plate of the clasping organs on the anal segment of the male partially concealed by the anal tuft is of a bright ochreous colour. Expanse, 12—13 mm.

I have received this species from N. Carolina, as well as, through the kindness of Prof. Fernald, from

Massachussetts. It will probably be found to be widely distributed.

Penthina hebesana, Walk.

N. Carolina.

Penthina malachitana, Zell.

One from N. Carolina.

SERICORIS, Treits.

Sericoris agilana, Clem.

A pair. N. Carolina.

Sericoris constellatana, Zell.

Eight specimens. Wisconsin.

Sericoris instrutana, Clem.

Four. N. Carolina.

Sericoris dealbana, Walk.

One male. Wisconsin.

Sericoris bipartitana, Clem.

One of two specimens from Wisconsin has the dark hind wings, described by Zeller as sometimes occurring in *S. cæsialbana*, Zell., which is regarded by Professor Fernald as a synonym of this species.

PÆDISCA, Treits.

Pædisca circulana, Hüb.

Two. Florida.

Pædisca robinsoniana, Grote.

One. N. Carolina.

Pædisca bolanderana, Wlsm.

Four. Arizona.

Pædisca caniceps, n. s. (Pl. IV., fig. 9).

Palpi white, the apical joint short, almost concealed by the closely-projecting scales of the 2nd joint. Head thickly clothed, hoary white, with projecting frontal tuft. Antennæ slightly pubescent, white. Thorax white, tinged with pale reddish fawn-colour. Fore wings (with the costa straight, apical margin oblique, dorsal margin convex towards the base) reddish fawn-colour, sprinkled with hoary white scales, especially above the middle of the wing and towards the apical margin. The costa beyond the costal fold white; fringes white; a silvery white line, slightly dilated before its depressed and pointed apex, follows the fold from the base, and terminates beyond the middle of the wing, not reaching the dorsal margin. There are three shorter and less conspicuous silvery white streaks, one along the basal half of vein 4, one (very short) at the upper angle of the cell, and almost reaching to this; another following the course of vein 8, from the costa immediately before the apex. Abdomen and hind wings shining whitish, faintly tinged with pale fawn-colour. The fringes white; on the under side the fore wings are tinged with fawn-colour; the costa white. Hind wings white, tinged with fawn-colour towards their costal margin. Expanse, 28 mm.

One male. Montana.

Pædisca emaciatana, n. s. (Pl. IV., fig. 7).

Palpi white, tinged with fuscous at the sides. Head, thorax, and antennæ white. Fore wings elongate, narrow at the base, with the costa straight; apical margin very oblique, white sprinkled with fawn-coloured scales; an oblique fawn-coloured patch about the basal third of the wing, containing a few dark umbreous scales, followed by a wider patch of the same colour beyond the middle, partially connected by an obliquely receding shade with the middle of the costa, and by a similar shade to a point beyond the middle of the dorsal margin. There are about six small fawn-coloured costal spots and a more conspicuous patch of the same colour at the apex of the wing, all containing a few umbreous scales. Cilia white, sprinkled with fawn-colour. Hind wings fawn-grey, with a rather iridescent opaline hue, and a dull line along the base of the whiter fringes. Expanse, 22 mm.

Three males. Arizona.

This species reminds one much of *P. larana*, Wlsm., but is somewhat more distinctly marked with fawn-colour; the fore wings are narrower in proportion to their length, especially at the base, and the apical margin

is more oblique; the costal fold is also decidedly darker than in that species.

Pædisca albiguttana, Zell.

N. Carolina.

Pædisca morrisoni, n. s. (Pl. IV., fig. 8).

Palpi white, the short apical joint quite concealed in the closely-packed projecting scales of the 2nd joint. Head white, thickly clothed with raised and projecting scales above and in front. Antennæ white. Thorax white, a pale fawn-coloured line dividing it along the middle. Patagia fawn-coloured. Fore wings (with the costa slightly arched, the apex acute, apical margin oblique and slightly concave) pale fawn-colour, with waved longitudinal streaks of silvery white, without dark margins, which may be divided into costal, median, and submedian. The costal streak runs narrowly along the costal margin nearly to the middle, whence it is deflected and dilated, assuming the form of more or less confluent short costal dashes, the first three tending obliquely outwards, the last two meeting them in the opposite direction before the apex. The median streak extends from the base of the wing to the end of the cell dilated outwardly for the first half of its length, where it is suddenly contracted, on its upper edge, by an angulated break, thence tapering to a sharp point which almost reaches a short detached waved longitudinal streak which lies between it and the lower half of the apical margin, and is itself somewhat connected by detached spots at each of its ends with the middle and end of the waved submedian streak. This submedian streak arises below the fold, not reaching the base, and is deflected to the dorsal margin before the middle following it thence nearly to the anal angle. A detached white spot lies near the base of the dorsal margin. Along the upper edge of the outer half of the median streak, and continued more conspicuously between the confluent costal dashes and the waved detached ultra-median streak nearly to the apical margin, is a curious wedge-shaped dash of pale fawn-coloured scales, each distinctly barred transversely with deep black. A line of similar scales runs along the apical margin at the base of the cilia, and is faintly reduplicated in the cilia themselves below the apex. Hind wings rather shining fawn-grey. Cilia slightly paler. Expanse, 20 mm.

One female. Montana.

There is a worn specimen of this species in Mr. Grote's collection at the British Museum, placed under the name *Grapholitha striatana*, Clem., together with others which are correctly referred to that species.

Pædisca giganteana, Riley. (Pl. IV., fig. 11).

I had instructed the artist to figure this fine species before I recognised it by the description. It bears a great resemblance to *Phthoroblastis juliana*, Curtis, but is of course much larger.

Two specimens, male and female. N. Carolina.

Pædisca canana, Wlsm.

One female. Arizona.

Pædisca agricolana, Wlsm.

One. Arizona.

Pædisca rectiplicana, Wlsm.

One male. Arizona.

Pædisca corosana, n. s. (Pl. IV., fig. 6).

Head roughly clothed, hoary whitish. The palpi projecting twice the length of the head beyond it, dusted with brownish fuscous scales at the base of their outer sides. Antennæ whitish. Fore wings dirty whitish, much sprinkled and shaded with fawn and greyish fuscous scales; these are chiefly collected in a short oblique streak about the middle of the basal third, containing a few black scales, and followed by a whitish patch; and in an oblique fascia-form shade from the middle of the costa to the anal angle, also containing a few black scales in its lower half, and followed by a whitish space of equal length, which terminates in the ill-defined ocelloid patch in which are two black dots. Immediately beyond these dots a narrow dull leaden line proceeds upwards to the costa, running at first parallel to the apical margin, but diverging inwards below the apex. The cilia of the general hue are preceded by a slight fawn-coloured shade. Hind wings pale brownish fuscous, with paler fringes. Expanse, 20 mm.

One male. Montana.

This species appears to be intermediate between *P. maculatana*, Wlsm., and *P. juncitciliana*, Wlsm.

There are two rather worn specimens in the collection of the late Prof. Zeller with the above unpublished name attached to them, which I have adopted. They are labelled as from "Texas."

Pædisca pulveratana, Wlsm.

Arizona.

Pædisca strenuana, Walk.

Several specimens from N. Carolina.

Pædisca aspidana, n. s. (Pl. IV., fig. 10).

Palpi hirsute, projecting more than twice the length of the head beyond it, speckled dull brown and whitish. Antennæ dull brownish, the head and thorax speckled. as are the palpi. The fore wings are much the same in colour as the head and thorax; an oblique dirty whitish line from before the middle of the dorsal margin reaches the costa beyond the middle; a similar and almost parallel line beyond the middle is bent outwards below the costa, which it reaches shortly before the apex, enclosing a small fuscous costal dot, which is followed by a larger dark spot at the apex. From the inner edge of the apical spot another pale line reaches the anal angle along the base of the fringes, which are slightly tinted with greyish fuscous and much speckled. Immediately before the anal angle is a conspicuous fuscous spot touching with its inner edge the lower part of the second pale line. Hind wings pale brownish, with darker cilia. Expanse, 17 mm.

Four specimens. Arizona.

Pædisca scudderiana, Riley.

A pair. Wisconsin.

Pædisca otiosana, Clem.

Two specimens. Florida.

Pædisca constrictana, Zell.

Five specimens. Florida.

The costal fold in the male is very distinctly visible in my specimens, which must, I think, belong to this species, although unfortunately there is no specimen in Zeller's collection with which to compare them.

Pædisca dorsisignatana, Clem.

Several specimens. N. Carolina.

SEMASIA, Steph.

? *Semasia corculana*, Zell., var.

These specimens differ from the type (now in my possession), which is from Vancouver, in the fore wings being more or less suffused with blackish scales, and in the deep blackish fuscous hind wings with dull ochreous fringes. Californian specimens are almost exactly intermediate between the two extreme forms, which, without these connecting-links, I should certainly have regarded as distinct.

If they may be correctly referred to the same species they supply a curious exception to the usual habits of variation among Lepidoptera, the more northern varieties being usually found to be the darkest. It is possible that they may belong to a distinct species, but this cannot be safely asserted until a larger number of good specimens are available for comparison.

The wide range of variation observable in European specimens of *Semasia aspidiscana* from different localities leads me to entertain some doubt of the distinctness of Zeller's *corculana* from that species. I have received from Mr. C. G. Barrett examples of *aspidiscana* which are indeed scarcely distinguishable from Zeller's type. The matter requires further study than I can devote to it for the purposes of this paper.

Semasia ochreicostana, n. s. (Pl. IV., fig. 13).

Palpi short, pale ochreous, tinged with ferruginous at the sides, the apical joint scarcely visible among the projecting scales of the 2nd joint. Head ferruginous. Antennæ ferruginous at the base, dull brownish fuscous beyond. Fore wings (with the costa almost straight, the apical margin oblique, slightly concave) pale ochreous, overshadowed, except along the costal third, by a dull greyish fuscous shade, which extends also over the thorax. The outer third of the wing bright reddish ochreous, containing five minute paler costal marks, from the first of which a silvery metallic streak runs obliquely outward to the upper edge of the ocelloid patch; from the second a similar but larger and more oblique streak runs around the upper and outer edge of the ocelloid patch nearly to the apical margin, where it meets a shorter and straighter metallic streak coming from the fifth pale spot near the apex. The third and fourth of these pale spots lie within the angle formed by two metallic lines, the fourth having also a few metallic scales attached

to it. The ocelloid patch reminds one much of that of *Semasia amphorana*, Wlsm., its upper half dull greyish fuscous, with three narrow longitudinal lines of black scales, having the appearance of rows of stitches, the lower half pale ochreous, margined at the sides and divided into two equal halves by three short bars of brassy metallic scales, each half containing six black spots. Cilia tawny. Abdomen and hind wings dull brownish fuscous, with pale straw-white fringes beyond the abdominal angle. On the under side all the wings are dull fuscous, except the pale costal and apical margins of the fore wings and fringes of the hind wings. Expanse, 19 mm.

Two females. Montana.

This species must be nearly allied to *Semasia taleana*, Grote, but his description does not agree with my specimens, the scales of which are certainly not blackish with white tips, nor is there a black patch below the median fold.

Semasia ? vestaliana, Zell.

This specimen differs from Zeller's type in the costal streaks being reduced to five small dots not actually touching the costal margin. Moreover, in the line along the apical margin being somewhat broken, not continuous as in Zeller's figure (Verh. z.-b. Ges. Wien, 1875, p. 80, pl. viii., fig. 21). A male in my own collection, taken in the cemetery at Denver, in Colorado, is more like Zeller's figure, but has a distinct fuscous shade along the inner edge of the marginal line. The male has no costal fold.

Following Heinemann's system of classification Prof. Fernald would be justified in placing this species in the genus *Semasia*, H.-S., rather than in *Grapholitha*, H.-S., the middle branch of the hind wings being decidedly bent towards its origin, and brought to the same point as the stem from which branches 3 and 4 arise, but in its small palpi and in the somewhat falcate apex of the fore wings it seems to approach the genus *Phoxopteris*, Treits.

One male. Montana.

Semasia argenticostana, Wlsm.

One male. Arizona.

Semasia tenuiana, Wlsm.

One male. Arizona.

Semasia montanana, n. s. (Pl. IV., fig. 12).

Head, thorax, palpi, and antennæ pale olivaceous-ochreous. Fore wings with the costa almost straight, apex acute; apical margin very oblique, not indented, pale olivaceous-ochreous. A very faintly indicated outwardly oblique fascia from beyond the middle of the costa is followed by some faint silvery lines, interspersed with a few inconspicuous blackish scales which appear to underlie the ochreous scaling. An outwardly oblique silvery streak following the edge of the faint fascia is continued along the subapical vein to the apex, enclosing three small festooned costal streaks in the apex above it. Beneath it are two more or less confluent silvery streaks along the veins. Cilia the same colour as the wings, interrupted by a faint line of darker scales along their middle, which forms also an oblique dash running inwards from the apex. Hind wings pale brownish grey, with paler cilia, a faint line near their base. Abdomen of the same colour as the hind wings; the anal tuft ochreous. Expanse, 18 mm.

One male. Montana.

This specimen, in good condition, is nearly allied to *S. messingiana*, F. R., but is smaller, paler, and less distinctly marked.

Semasia argutana, Clem.

Two males, one female. Arizona.

These are larger than the average of specimens from the Eastern States, reaching 16 mm. in the expanse of the fore wings. I have similar large specimens from California.

Semasia apacheana, n. s. (Pl. IV., fig. 14).

Palpi creamy white, with a few fawn-brown scales externally and on the very short apical joint. Head creamy white, roughly clothed above. Thorax creamy white. Antennæ slightly pubescent, faintly annulated. Fore wings creamy white, with an oblique triangular fawn-brown dorsal mark before the middle reaching half across the wing, beyond which is an oblique fascia-form shade running from a point beyond the middle of the costal margin to the dorsal margin immediately before the anal angle; in it are sometimes a few blackish scales near the dorsal margin, and it is mar-

gined externally by silvery white. The equilateral triangle formed by the apical portion of the wing is tinted with fawn-colour, and contains two pairs of rather wide silvery white costal streaks, between which and also at the apex of the wing the fawn-colour is somewhat more intense. The cilia are white; an ocellated patch above the anal angle, enclosed at the sides by silvery white, contains a few jet-black dots. Hind wings dull brownish, with greyish white fringes. Expanse, 14 mm.

Four specimens. Arizona.

? Semasia helianthana, Riley.

A single female from Arizona agrees with Riley's description, except in the absence of a basal shade on the fore wings. I am not confident that it is correctly identified, as I have never seen specimens of this species.

PROTEOPTERYX, Wlsm.

Proteopteryx emarginana, Wlsm.

One male and one female. Arizona.

These specimens have no clearly defined dorsal patch, as have nearly all my Californian varieties, but are distinguished by a waved umbreous streak reaching from the apex nearly to the middle of the wing, nearer to the costal than to the dorsal margin. The costal fold also seems to be somewhat more conspicuous and more closely appressed in the male; but it would not be safe to separate it from a species exhibiting so wide a range of variation upon the evidence of such slight differences in two specimens only.

STEGANOPTYCHA, Steph.

Steganoptycha sp.

This is the same species as that which stands in Fernald's catalogue as *S. incarnana*. Haw., on the authority of a specimen collected by me in California, and recorded in Cat. Lep. Het., B. M., part iv. Six specimens now received from Mexico lead me to believe that it is really distinct from that species. All are alike in having a narrower central fascia than the European form of *S. incarnana*, as well as in some minor differences. A further examination of other allied species is necessary before I shall be justified in describing it under a new specific name.

Steganoptycha fasciolana, Clem.

Six specimens. Wisconsin.

One of Walker's specimens, under the name *Penthina dealbana*, belongs to this species, but is not the type.

? Steganoptycha lagopana, Wlsm.

Two females. Arizona and Montana.

These varieties, not impossibly representing a distinct species, differ from *S. lagopana* in having the whole base of the fore wings darkened so as to include the first dorsal streak in an almost unicolorous basal patch, slightly angulated outwards about the middle; they have also a dark streak in the cilia beneath the apex of the fore wings, and a dark shade in the cilia at the apex of the hind wings. I have two males and two females from California with these same characters, and have always been inclined to regard them as belonging to a distinct species.

Without possessing a larger number of specimens it is impossible to determine to what extent of variation the species above mentioned or its near allies are subject.

TMETOCERA, *Led.**Tmetocera ocellana*, Schiff.

One male. Wisconsin.

PHOXOPTERIS, *Treits.**Phoxopteris nubeculana*, Clem.

One pair. Wisconsin.

Phoxopteris burgessiana, Zell.

One specimen. N. Carolina.

Phoxopteris platanana, Clem.

One specimen. N. Carolina.

Phoxopteris sp.

One male. Arizona.

A large species, rather of the pattern of *P. dubiana*, Clem., but more distinctly marked, having a reddish

brown dorsal patch occupying two-thirds of the dorsal half of the wing, its outer margin being very oblique; beyond the middle on the costal half of the wing is a fuscous cloud, connected by a fuscous streak with a dark line at the base of the fringe immediately below the falcate apex. It would not be safe to found a new species in this difficult genus upon the evidence of a single specimen, but I am unable to recognise it as belonging to any species at present described.

GRAPHOLITHA, *Treits*.

Grapholitha vitrana, Wlsm.

Six examples. Arizona.

Grapholitha ? duodecemstriata, n. s. (Pl. IV., fig. 16).

Palpi white, the apical joint broadly barred with black on the outer side. Face white, with a black streak down the middle. Antennæ longitudinally streaked with black and white. Thorax and patagia greyish white, streaked and spotted with black. Fore wings beautifully streaked on the basal half with alternate waved lines of black and white converging obliquely outwards above the middle. A triangular greyish black dorsal patch extends more than half across the wing, meeting an oblique black line coming from the costa; beyond this patch is the ocelloid spot margined on both sides with light steel-coloured metallic bars, and containing twelve parallel transverse whitish lines set in deep black; above these are five pairs of oblique white costal streaks, each pair terminating in a line of greyish metallic scales. The apical margin is profusely dotted with white on a black ground; the cilia lustrous brownish grey. Hind wings dull whitish at the base, brown on their outer half, with snow-white fringes. Abdomen greyish; on the under side snow-white. Legs white, with black-spotted hinder tarsal joints. Expanse, 18 mm.

One male. Arizona.

A lovely species, which the discovery of the male may not impossibly show to belong to the genus *Carpocapsa*.

ECDYTOLOPHA, *Zell*.

Two examples from N. Carolina; and one labelled "Arizona." In the latter case I am inclined to think that a mistake may have occurred.

CARPOCAPSA, Treits.

Carpocapsa pomonella, Linn.

Wisconsin.

With the exception of about four additional species, which I am unable at present to determine satisfactorily, this constitutes a complete list of the Tortricidæ received from Mr. H. K. Morrison during the last two years.

It may be useful to remark, with reference to one species placed by Fernald in the list (appended to his catalogue) of those which he has been unable to determine, that the type of *Teras retractana*, Walker, in the British Museum, is labelled as received from Australia.

EXPLANATION OF PLATE IV.

- FIG. 1. *Sciaphila arizonana*, Wlsm.
2. *Ænectra* ? *striata*, Wlsm.
3. *Ænectra irrorea*, Rob.
4. *Conchylis dorsistriatana*, Wlsm.
5. „ *fulvotinctana*, Wlsm.
6. *Pædisca corosana*, Wlsm.
7. „ *emaciatana*, Wlsm.
8. „ *morrisoni*, Wlsm.
9. „ *caniceps*, Wlsm.
10. „ *aspidana*, Wlsm.
11. „ *giganteana*, Riley.
12. *Semasia montanana*, Wlsm.
13. „ *ochreicostana*, Wlsm.
14. „ *apacheana*, Wlsm.
15. *Aphelia* ? *inquadrana*, Wlsm.
16. *Grapholitha* ? *duodecemstriata*, Wlsm.